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S/135/61/000/007/004/012
A006/A106

AUTHORS: Brodskiy, A. Ya., Candidate of Technical Sciences, Baryshev, V. M.,
Rakhmanov, A. S., Engineers

TITLE: On the weldability of В92Т (V92T) grade aluminum alloy

PERIODICAL: Svarochnoye proizvodstvo, no. 7, 1961, 13-17

TEXT: Results are presented from the first stage of investigations on the weldability of thermally strengthened V92T aluminum alloy. The work was carried out with the participation of L. S. Livshits, Candidate of Technical Sciences, from VNIIST, for the purpose of evaluating the applicability of this alloy in welded structures. The tests were made with 10 mm thick V92T-alloy sheets welded by argon-arc process with non-consumable electrode and by automatic and semi-automatic process with consumable electrode. Plates of 130 x 130 mm dimensions with V-shaped beveling of edges were welded on dismountable steel backing plates. The filler and electrode wires were of the same composition as the base metal. The content of the basic alloying components in the alloy was 3.9% Mg, 2.7% Zn, 0.8% Mn. From two chemical methods of cleaning the wire, etching in 30% orthophosphoric acid solution with small additions of potassium bichromate, for 20 min,

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On the weldability ...

at 45°C, assured reliable surface treatment of the wire. Manual argon-arc welding was performed on a УДАР-300 (UDAR-300) machine. The seams were applied in 2 and 3 layers at 280-300 amps current, 15 l/min argon consumption, 6 mm tungsten electrode diameter, 4 mm diameter of the filler wire and 70° chamfering angle. Semi-automatic and automatic welding was made on the ПШП-10 (PShP-10) semi-automatic and the APK-1 (ARK-1) automatic machines. The semi-automatic welding conditions were: 270-280 amp current, 22-24 v arc voltage, 20 l/min argon consumption, 70° chamfering angle. Conditions for automatic welding were: 300-320 amps current intensity in single-layer welding and 280-300 amps in double-layer welding; 22-24 v arc voltage 20 l/min argon consumption; speed of welding single-layer joints 17-19 m/h; for welding the first layer of double-layer joints 28-30 min/h, and for welding the second layer 22-24 m/h; total chamfering angle 60°. The electrode was located vertically. Mechanical properties of the welded joints were determined on standard specimens with reinforced welds. Toughness of the weld metal, of the fusion zone metal and of the heat-affected zone were determined. The experiments showed that the mechanical properties of welded butt joints on 10 mm thick V92T specimens, performed by argon-arc method with consumable electrode were below those of joints argon-arc welded with non-consumable electrodes. The strength of welded butt joints of medium thickness is 90-95% of the base metal.

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strength after three-month natural aging. Therefore manual argon-arc welding with tungsten electrode can be recommended for important medium-thick V92T alloy parts. This alloy is somewhat more prone to pore formation than AMg6 alloy in particular when welded with consumable electrode. The relative strength of joints produced by argon arc welding with consumable electrode is 80%. Consequently, this method for welding V92T alloy must presently be limited. Natural aging of the weld metal and the heat-affected zone of welded butt joints lasts for 3 months and proceeds particularly intensively during the first month after welding. As a result of three-month natural aging the properties of the weld produced by argon-arc welding with non-consumable electrode and of the heat-affected zone, approach the properties of the base metal in its initial state. The process of natural aging of weld joints is practically completed within three months. The V92T alloy is sensitive to stress concentration. For this reason the surface of the weld joint should pass smoothly into the base metal. There are 9 figures.

ASSOCIATIONS: TsNII stroitel'nykh konstruktsiy AS i A SSSR - TsNII of Building Constructions of AS and A SSSR - (Brodskiy and Baryshev); VNIIST (Rakhmanov)

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S/125/61/000/012/008/008
D040/D112

AUTHOR: Brodskiy, A.Ya.

TITLE: Application of argon-arc welding in manufacturing aluminum structures in Czechoslovakia

PERIODICAL: Avtomaticheskaya svarka, no. 12, 1961, 81-85

TEXT: The author visited Czechoslovakia, to acquaint himself with argon-arc welding of aluminum structures at the Decin Plant of the Ministry of Heavy Machinery, and new welding equipment for this process at the Research Institute for Welding Equipment and Technology in Prague (VUSTS). Argon-arc welding is the only welding process used at the Decin Plant, which produces equipment for the chemical industry, including containers made of aluminum, copper and stainless steel, and plans to build the first aluminum bridge in Czechoslovakia at the entrance to the Prague Kremlin on the basis of a project developed by Candidate of Technical Sciences V.Gorak. The bridge will be built from an alloy analogous to the Soviet AMr3 (AMg3), using electrode wire similar to the Soviet AMr5 (AMg5) grade. A plasma torch ("plasmotron"), designed by the Electric Welding Institute of the Ministry of Metallurgy in

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Bratislava, is being used for cutting heavy aluminum sections at the plant. The torch is mounted on a roller carriage moved manually. The arc burns between a thoriated tungsten electrode and a water-cooled copper ring. Two welding generators connected in series, produce a d.c. current of 550 amps and 160 v for the torch which cuts 80 mm thick aluminum at a rate of 300 mm/min, the cut being 10 mm wide with quite smooth surfaces. The author describes the techniques used for welding both aluminum containers made from 16 mm thick elements as well as thin-wall structures (1-2 mm), and gives a few details on the pickling department, where the welding wire and fairly large aluminum elements are treated. The plant also tests and debugs new argon-arc welding equipment designed by the Research Institute for Welding Equipment and Technology. This Institute has developed argon-arc welders for manual, semiautomatic and automatic welding of aluminum and aluminum alloys. Its manual T150 and T350 welders are already being produced on an industrial scale. The T350 is similar to the Soviet УДАР-300 (UDAR-300) welder. Two new special nozzles for these welders are described and one, for strong current, is shown in an exploded-view photograph. The Institute has developed and is now testing the semiautomatic САП-400Б(SAP-400B) argon-

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arc welder with a consumable aluminum electrode, serial output of which is planned for 1962, and is also testing a pilot unit of an automatic welder with a consumable electrode, in which the electrode wire runs from a vertically mounted wire coil at a distance from the welding head. The author expresses gratitude to the administrators of the above-mentioned organizations, and to Academician Gotsar, Candidate of Technical Sciences V. Gorak and Engineers V. Gromadko, Ya. Shveyde, Kinzel' and O. Kratsik. There are 4 figures. [Abstracter's note: All personalities mentioned in the text are Czechoslovakian].

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BRODSKIY, A.Ya.; CHZHAN SYU-CHZHI [Chang Hsiu-chih]

Effect of the conditions of argon-shielded arc welding of aluminum alloys with consumable electrodes, on weld surfaces. Avtom, svar. 14 no.3:27-31 Mr '61. (MIRA 14:2)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy Akademii stroitel'stva i arkhitektury SSSR.
(Aluminum alloys—Welding) (Protective atmospheres)

BRODSKIY, A.Ya.

Use in Czechoslovakia of argon-arc welding in the manufacture
of aluminum structures. Avtom. svar 14 no.12:81-85 D '61.
(MIRA 14:11)

(Czechoslovakia--Aluminum alloys--Welding)

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, A.Ya., kand.tekhn.nauk; TOLMACHEVA, N.V., inzh.

Investigating the weldability of nickel-free 14G2, 14KhGS,
and 15GS low-alloy steel. Trudy TSNIISK no.4:134-210
(MIRA 15:2)

(Steel alloys—Welding)

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

DRUDSKY, A.Ya.

Manufacture of welded steel elements in Czechoslovakia.
Prav. stroj. 39 no.11:56-3 of cover '61. (MIRA 14:12)
(Czechoslovakia--Steel, Structural)

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

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1.2300 2408 S/842/62/000/000/001/006
AUTHOR: Brodskiy, A.Ya., Candidate of Technical Sciences
TITLE: The weldability of aluminium alloys
SOURCE: Primeneniye svarki v stroitel'nykh konstruktsiyakh.
Vses. konfer. po prim. svarki v stroy. konstr., 1961.
Moscow, Gosstroyizdat, 1962. 29-70

TEXT: This is a survey of information both previously published and derived from original work at the TsNIISK at the Akademiya stroitel'stva i arkhitektury SSR (Academy of Building and Architecture of the USSR). The general properties of aluminium alloys are recited under the headings: Al-Mn, Al-Mg, Al-Mg-Si-avial, Al-Zn-Mg, Al-Cu-Mn, Al-Cu-Mg-duralumin and Al-Zn-Mg-Cu groups. In each group weldability is considered under the two headings of metallurgical and operational weldability. The first is the resistance against the formation of crystallization cracks, porosity and overheating of the fused metal. The second embraces the strength and ductility of welded joints under specified conditions of loading. Operational weldability differs for fusion and resistance welding. Weldability is determined largely in Card 1/3

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mechanical tests of welded joints and depends on design factors as well as the properties of the alloy. The information is presented in some graphs and tables, most of which list mechanical properties by alloy groups, types of joint and welding process. Soviet brands of aluminium alloys are considered exclusively. A final graph illustrates the weldability of 18 alloys divided into the seven groups listed above in terms of the strength, as a percentage of the parent metal strength, of the welded joint separately for thick and thin wall joints and in terms of the ductility as a percentage of the parent metal ductility. Alloys in the Al-Mn, Al-Mg and Al-Zn-Mg groups possess the best weldability. Some brands in the Al-Cu-Mn and Al-Cu-Mg groups have a satisfactory weldability. The alloys АМг61 (AMg61), В92Т (V92T), Д19 (D19), Д20 (D20) and М40-Т-1 are recommended for applications in the building industry. The use of alloys in the Al-Mg-Si group in load carrying building structures is advisable, provided argon arc welding with a consumable electrode is used. Semi-automatic welding with a consumable electrode and mechanized tungsten electrode welding are possible under the

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The weldability of aluminium ...

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best conditions. There are 13 figures and 32 tables.

ASSOCIATION: TsNIISK

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ALADAR-TURI, inzh.; BRODSKIY, A.Ya., kand.tekhn.nauk

Local heat treatment of resistance welded joints in 35GS steel
reinforcement rods. Svar. proizv. no.6:9-11 Je '62. (MIRA 15:6)

1. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh
konstruktsiy.

(Concrete reinforcement—Welding)
(Steel—Welding)

SAVCHENKOV, V.A., kand.tekhn.nauk; TRUBILKO, V.I., inzh.; BRODSKIY, A.Ya.,
kand.tekhn.nauk; FRIDMAN, A.M., mladshiy nauchnyy sotrudnik

Weldability of St. 5ps capped reinforcement steel. Prom.stroi.
no.10:51-53 '62. (MIRA 15:12)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov (for
Savchenkov, Trubilko). 2. TSentral'nyy nauchno-issledovatel'-
skiy institut stroitel'nykh konstruktsiy Akademii stroitel'stva
i arkhitektury SSSR (for Brodskiy, Fridman).

(Concrete reinforcement—Welding)

BRODSKIY, A.Ya., kand.tekhn.nauk; TOIMACHEVA, N.V., inzh.

Automatic welding under flux of insertion pieces for sectional
reinforced concrete constructions. Svar.proizv. №.11:28-31 N
'62. (MIRA 15:12)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh
konstruktsiy Akademii stroitel'stva i arhitektury SSSR.
(Concrete reinforcement—Welding)

BRODSKIY, A.Ya., kand.tekhn.nauk; TOLMACHEVA, N.V., inzh.

Grade 15GS low-alloy silicon-manganese steel for welded
structural elements. Trudy TSNIISK no.13:232-247
'62.

(MIRA 15:11)

(Steel, Structural--Testing)

BRODSKIY, A.Ya.; FRIDMAN, A.M.; MULIN, N.M.; LEYKIN, I.M.; ROSHCHINA, A.A.

Low-alloy ribbed reinforcing steel with large diameters (40 & 90 mm.).
Bet. i zhel.-bet. 8 no.7:303-306 Jl '62. (MIRA 15:7)

1. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh
konstruktsiy Akademii stroitel'stva i arkhitektury SSSR (for
Brodskiy, Fridman). 2. Nauchno-issledovatel'skiy institut
betona i zhelezobetona Akademii stroitel'stva i arkhitektury SSSR
(for Mulin). 3. TSentral'nyy nauchno-issledovatel'skiy institut
chernoy metallurgii (for Leykin, Roshchina).
(Concrete reinforcement—Testing)

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CIA-RDP86-00513R000307010002-8

BRODSKIY, A.Ya., kand.tekkhn.nauk; TOLMACHEVA, N.V., inzh.

Weldability of low-alloy 15 GS manganese steel. Prom. stroi.
40 no.3:47-54 '62. (MIRA 15:3)

1. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh
konstruktsiy Akademii stroitel'stva i arkhitektury SSSR.
(Manganese steel) (Welding research)

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

BRODSKIY, A.Ya., kand.tekhn.nauk

New data about submerged arc welding of butt joints of reinforcement in assembly. Prom.stroi. 40 no.11:42-46 '62.
(MIRA 15:12)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh
konstruktsiy Akademii stroitel'stva i akrhitektury SSSR.
(Concrete reinforcement—Welding)

BRODSKIY, A.Ya., kand. tekhn. nauk; FRIDMAN, A.M., inzh.;
ZUBKOVA, M.S., red.; KASIMOV, D.Ya., tekhn. red.

[Investigating the welding of reinforcements for reinforced-concrete structures; welding of 35GS reinforcement steel]
Issledovaniia svarki armatury zhelezobetonnykh konstruktsii;
svarka armaturnoi stali marki 35GS. Moskva, Gosstroizdat,
1963. 85 p.
(Concrete reinforcement) (Electric welding)

BRODSKIY, A.Ya., kand.tekhn.nauk; FRIDMAN, A.M., inzh.

Weldability of grades St.5 and 35GS steel strengthened by cold
drawing. Bet.i zhel.-bet. 9 no.5:210-215 My '63.

(MIRA 16:6)

(Concrete reinforcement-Welding)

BRODSKIY, A. Ya.; LOSHCHILOV, V. I.

Resistance of welded butt joints in large diameter 35GS steel
reinforcement rods. Avtom. svar. 16 no.3:28-33 Mr '63.
(MIRA 16:4)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'-
nykh konstruktsiy Akademii stroitel'stva i arkhitektury SSSR.

(Concrete reinforcement—Welding)
(Welding—Testing)

BRODSKIY, A.Ya., kand. tekhn. nauk; BALDIN, V.A., kand. tekhn. nauk; STRASHNYKH, V.P., red.izd-va; SHCHEVCHENKO, T.N., tekhn. red.

[Argon-arc welding of aluminum alloys for building elements; technological recommendations] Agrono-dugovaia svarka aliuminievykh splavov dla stroitel'nykh konstruktsii; tekhnologicheskie rekomendatsii. Moskva, Gosstroizdat, 1963. 179 p. (MIRA 17:1)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy. 2. Rukovoditel' sektora svarki TSentral'noy laboratorii metallokonstruktsiy TSentral'nogo nauchno-issledovatel'skogo instituta stroitel'nykh konstruktsiy (for Brodskiy). 3. Rukovoditel' TSentral'noy laboratorii metallokonstruktsiy TSentral'nogo nauchno-issledovatel'skogo instituta stroitel'nykh konstruktsiy (for Baldin).

BRODSKIY, A. Ya.; PAL. R.

Effect of titanium on the weldability of 14G2T low-alloy
steel. Avtom. svar. 17 no.4:15-20 Ap '64 (MIRA 18:1)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'-
nykh konstruktsiy.

BRODSKJY, A.Ya., kand.tekhn.nauk; TOLMACHEVA, N.V., inzh.

Weldability of thermally hardened St.3kp steel. Svar.proizv.
no.12:11-15 D '64. (MJRA 18:1)

1. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh
konstruktsiy im. V.A.Kucherenko Gosstroya SSSR.

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, A.Ya., kand. tekhn. nauk; FRIDMAN, A.M., inzh.

Resistance welding of hardened reinforcement rods made of
carbon steel. Svar. proizv. no.3:5-8 Mr '65. (MIRA 18:5)

1. Tsentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh
konstruktsiy.

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

ACC NR: AP5027602

SOURCE CODE: UR/0135/65/000/011/0022/0024

AUTHOR: Tolmacheva, N. V. (Engineer); Brodskiy, A. Ya. (Candidate of technical sciences) 44,55 44,55

ORG: TeNIISK im. V. A. Kucherenko 44,55

TITLE: Weldability of thermally hardened 10G2S low-alloy steel 44,55,14 18

SOURCE: Svarochnoye proizvodstvo, no. 11, 1965, 22-24

TOPIC TAGS: weldability, steel, metal hardening, material fracture, metal aging, impact strength / 10G2S steel

ABSTRACT: The results of a study of the weldability of 10G2S low-alloy steel (0.1% C, 1.3-1.43% Mn, 1.0% Si, 0.023% S, 0.022-0.024% P, 0.12% Cu, 0.05-0.08% Cr, 0.06-0.08% Ni) are presented. The steel was first rolled into 12, 20 and 30 mm thick sheets and heat-treated (water quenching from 910-900°C with subsequent high-temperature tempering). Owing to thermal hardening, the ultimate strength of the steel was increased by 6%; yield point, by 20%; and impact strength, by 34-57%; and the critical temperature of brittle behavior dropped below - 60°C; in addition, proneness to aging decreased. The following factors of the steel's weldability were investigated: optimal linear energy of the welding arc, proneness of workhardened steel to aging in the zone of thermal influence, local variations of yield point and impact

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UDC: 621.791.011:669.15-194

ACC NR: AP5027602

toughness in the zone of thermal influence in the butt-welded joint, and the proneness of steel in the zone of thermal influence to brittle fracture^{1,2} in the presence of natural and artificial stress concentrators. The welding and testing procedure is described in previous articles by the same authors (Brodskiy, A. Ya., Tolmacheva, N. V. In coll: Issledovaniya po metallicheskim konstruktsiyam, Gosstroyizdat, 1961; and Issledovaniya po stal'nym konstruktsiyam, Gosstroyizdat, 1962). The overall weldability of the steel was determined by comparing the test results for the weldments with the results of analogous tests for the base metal (in thermally hardened and hot-rolled state) as well as with official standards. Findings: the optimal linear energy of the welding arc for this steel is 5-10 kcal/cm. If the cooling rate of the near-weld zone is 4-18°C/sec, the steel's mechanical indicators (impact strength and yield limit) remain acceptable. Resistance to aging and to brittle fracture in the presence of natural and artificial strength concentrators is markedly higher for thermally hardened 10G2S steel than for hot-rolled steel of the same kind. E55A-type electrodes may be recommended for the welding of thermally hardened 10G2S steel. Orig. art. has: 4 figures, 2 tables.

SUB CODE: 11, 13/ SUEM DATE: none/ ORIG REF: 002/ OTH REF: 001

Cord

2/2

ACCESSION NR: AP4029253

S/0125/64/000/004/0015/0020

AUTHOR: Brodskiy, A. Ya. (Candidate of technical sciences); Pal, R. (Candidate of technical sciences)

TITLE: Effect of titanium on the weldability of low-alloy 14G2T steel

SOURCE: Avtomaticheskaya svarka, no. 4, 1964, 15-20

TOPIC TAGS: steel, low alloy steel, 14G2T steel, 14G2 steel, 14G2T steel weldability, weldability

ABSTRACT: The weldability of 14G2T steel containing 0.06-0.15% Ti made at the Zaporozhstal' plant in basic open-hearth oxygen furnaces was experimentally investigated. The steel rolled at over 1,000°C could not be used for welded structures due to its low toughness. However, after normalization (at 900-910°C for 4 minutes per 1 mm thickness) the steel acquired high mechanical characteristics (tabulated), which varied but little with the plate thickness up to 40 mm,

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ACCESSION NR: AP4029253

and a high resistance to embrittlement; its resistance to crystallization-fissure formation manifested itself in welding in CO₂ or by coated electrodes. It was found that satisfactory 14G2T-steel welds can be obtained with an arc energy of 1,700–5,000 cal/cm, with 12-mm-thick plate which corresponds to the rate-of-cooling of the weld-affected zone of 60.0–5.5°C/sec. Sv-08GS and Sv-08G2S electrode wires are recommended for CO₂ welding, and UONI-13/55A, for manual arc welding. The above results probably hold true for other low-alloy steels, such as 15GS, 14KhGS, 14KhGSN, 15KhSND. Orig. art. has: 4 figures and 3 tables.

ASSOCIATION: Tsentral'ny*y nauchno-issledovatel'skiy institut stroitel'ny*kh konstruktsiy (Central Scientific Research Institute of Building Structures)

SUBMITTED: 06Aug63

DATE ACQ: 27Apr64

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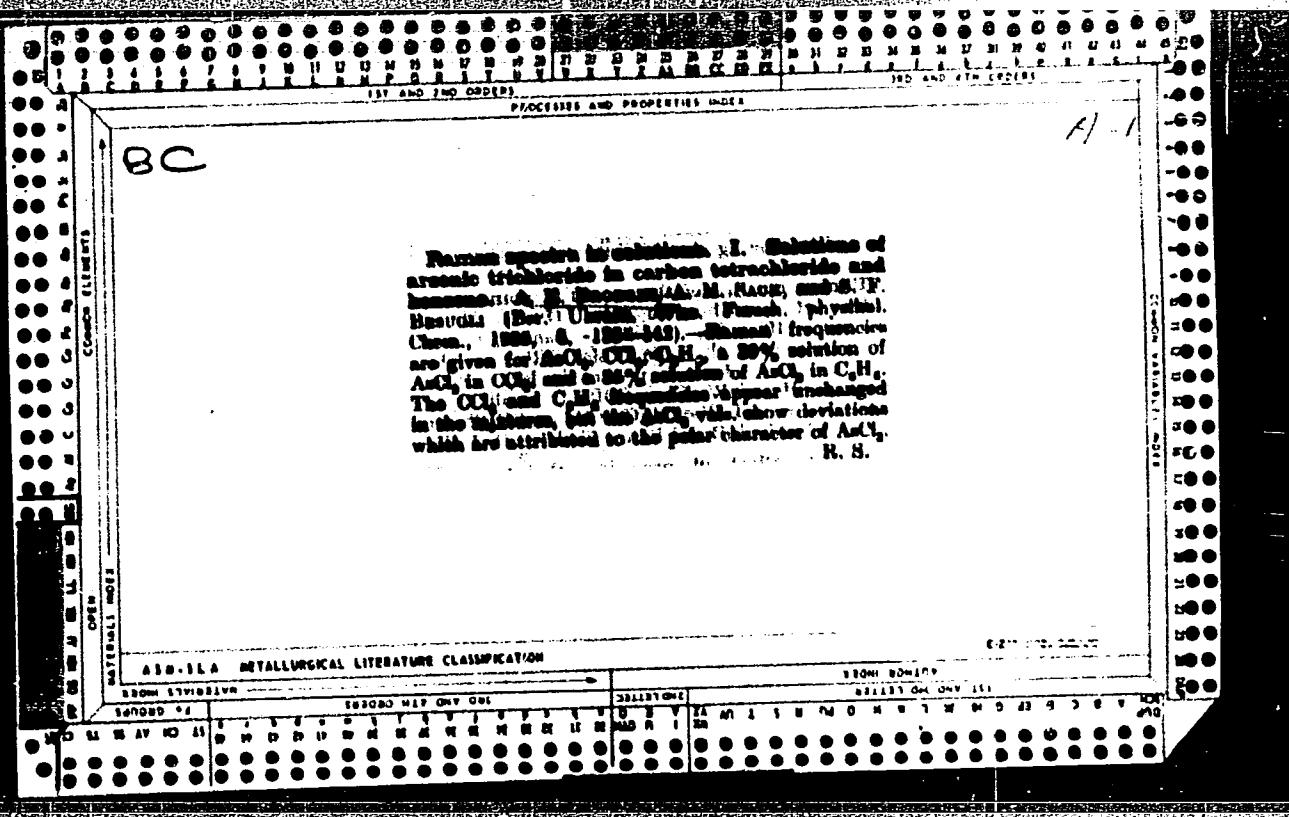
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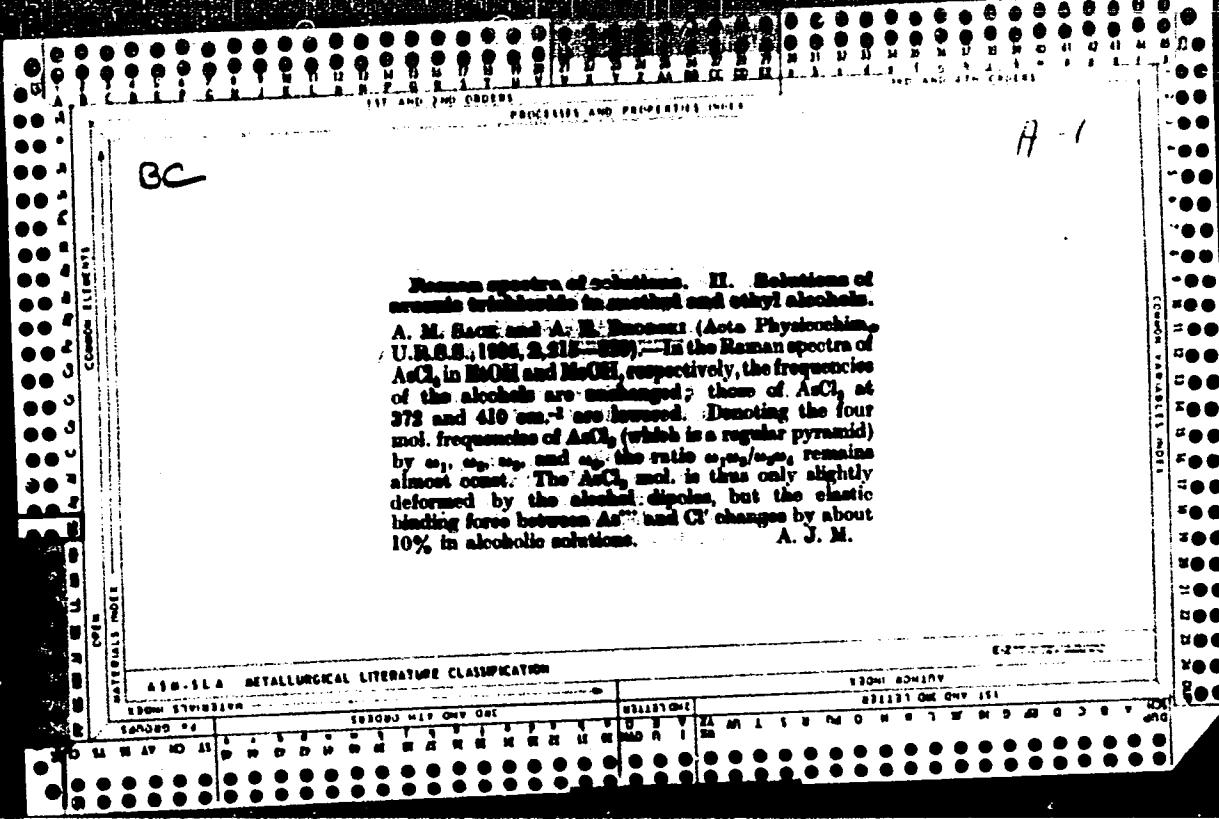
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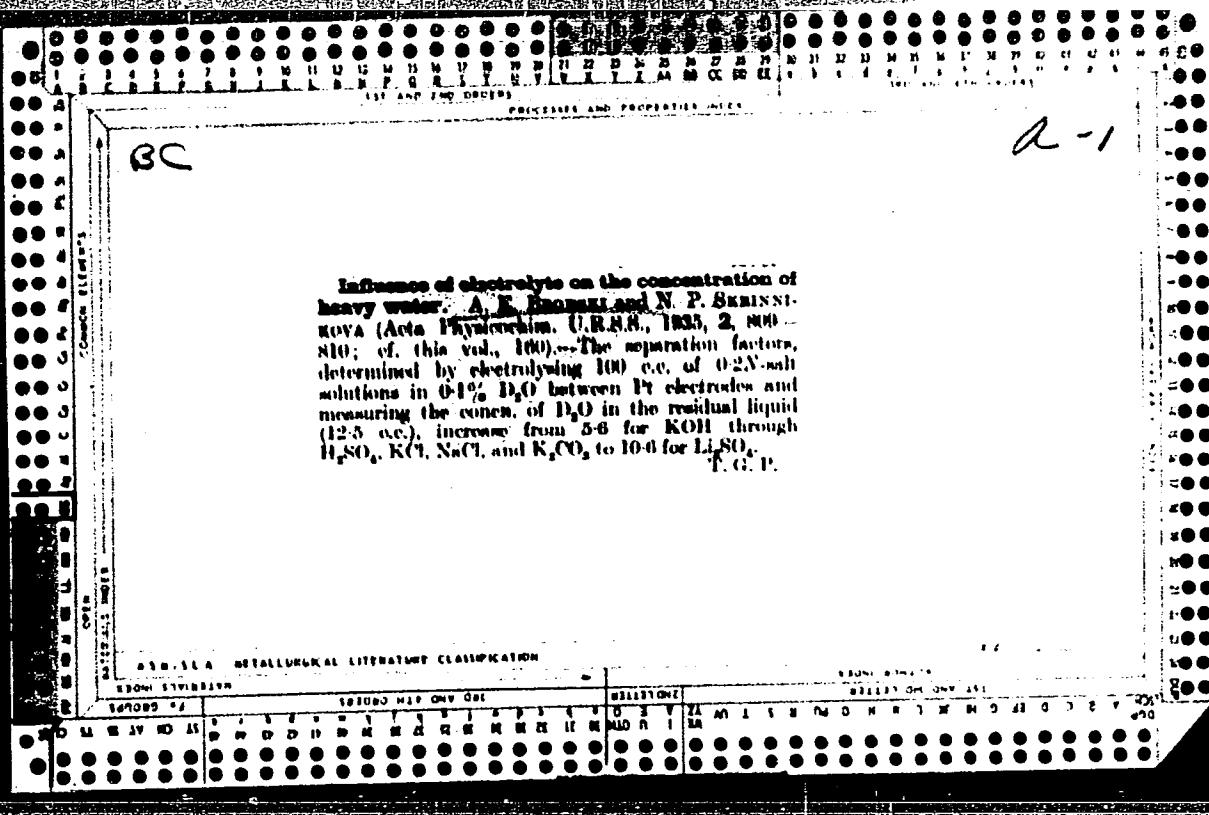
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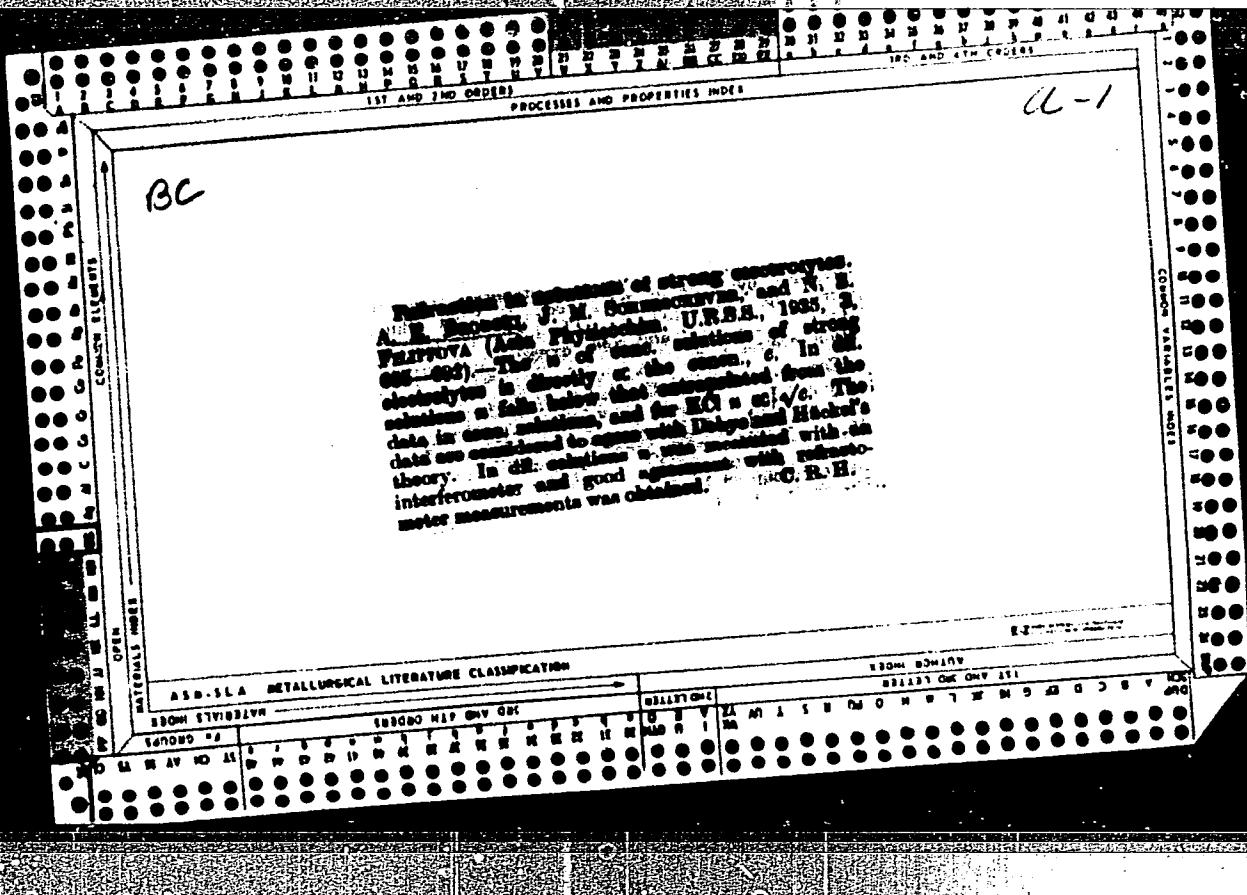
[Argon-arc welding of aluminum alloys for building structures; industrial recommendations] Argon-dugovaia svarka aliuminievykh splavov dla stroitel'nykh konstruktsii; tekhnologicheskie rekomendatsii. Moskva, Gosstroizdat, 1963. 179 p. (MIRA 17:10)

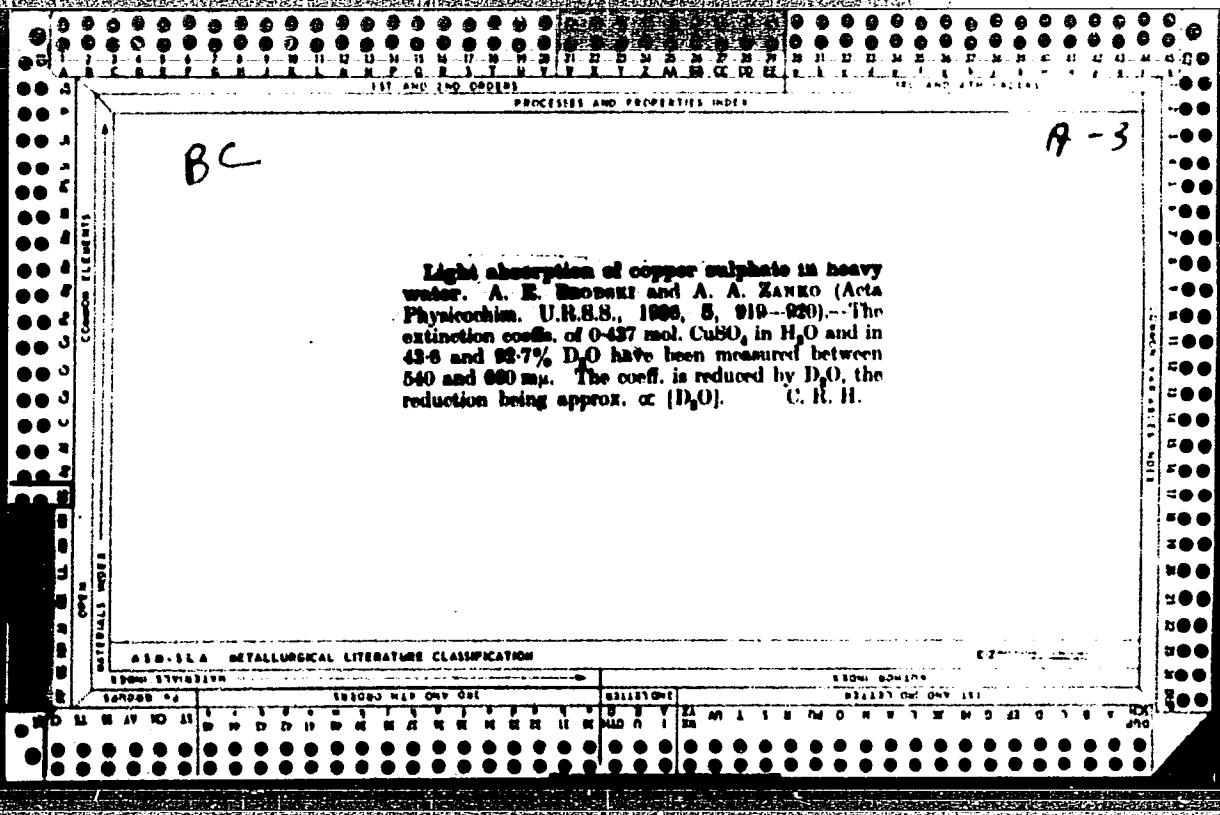
1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsii. 2. Rukovoditel' sektora svarki TSentral'noy laboratorii metallokonstruktsiy TSentral'nogo nauchno-issledovatel'skogo instituta stroitel'nykh konstruktsiy (for Brodskiy). 3. Rukovoditel' TSentral'noy laboratorii metallokonstruktsiy TSentral'nogo nauchno-issledovatel'skogo instituta stroitel'nykh konstruktsiy (for Baldin).

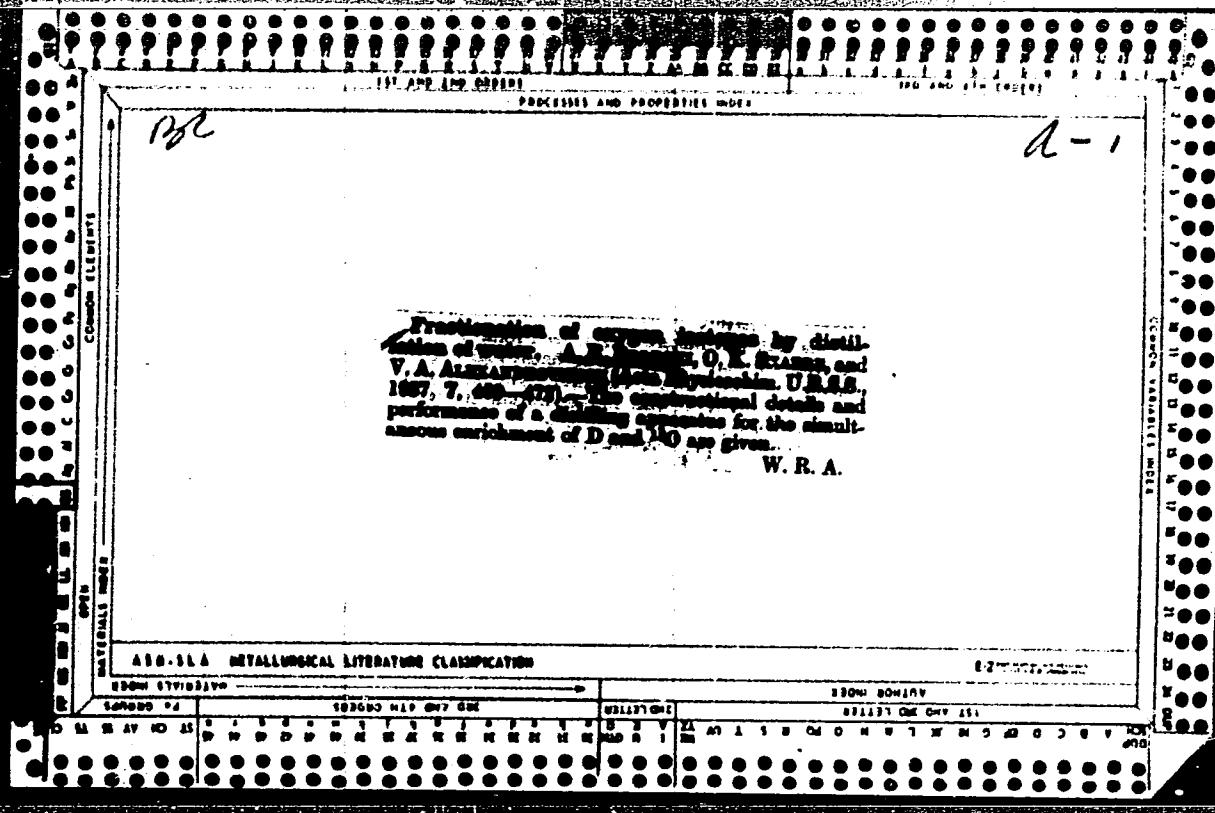


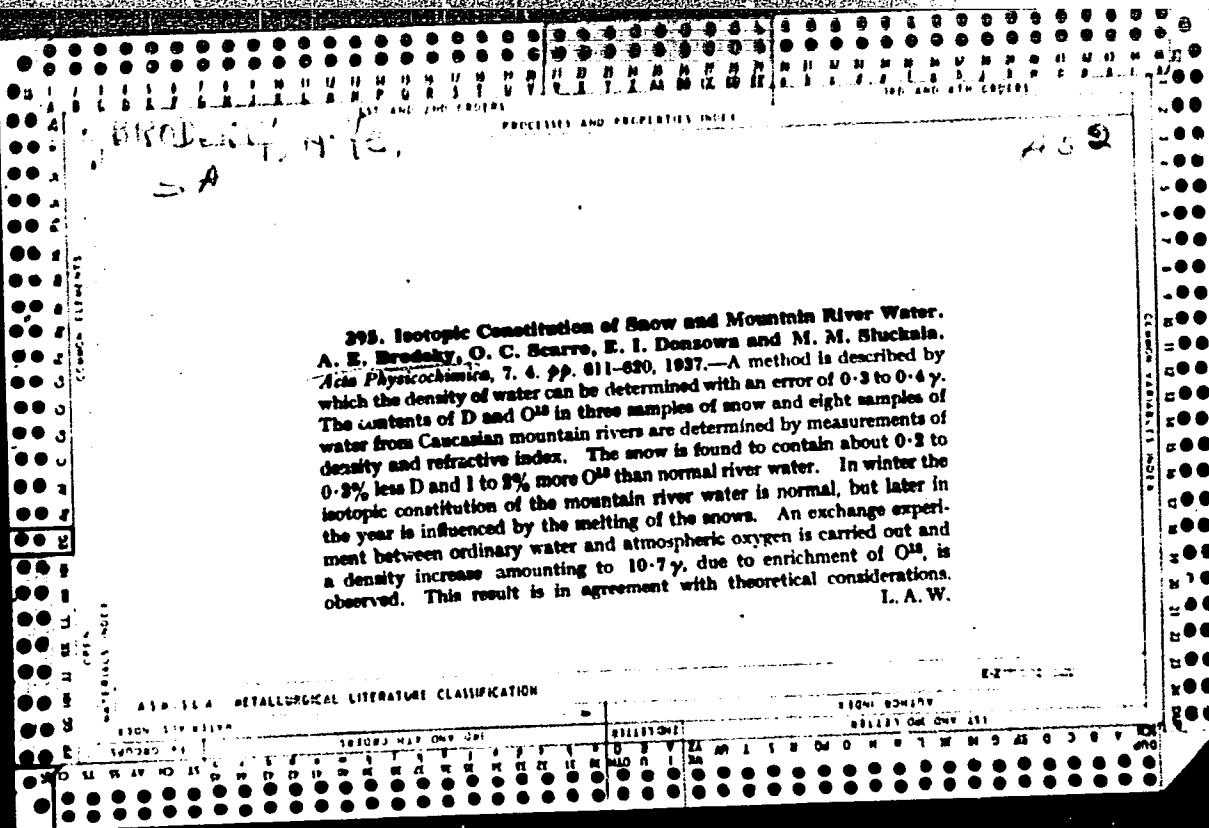


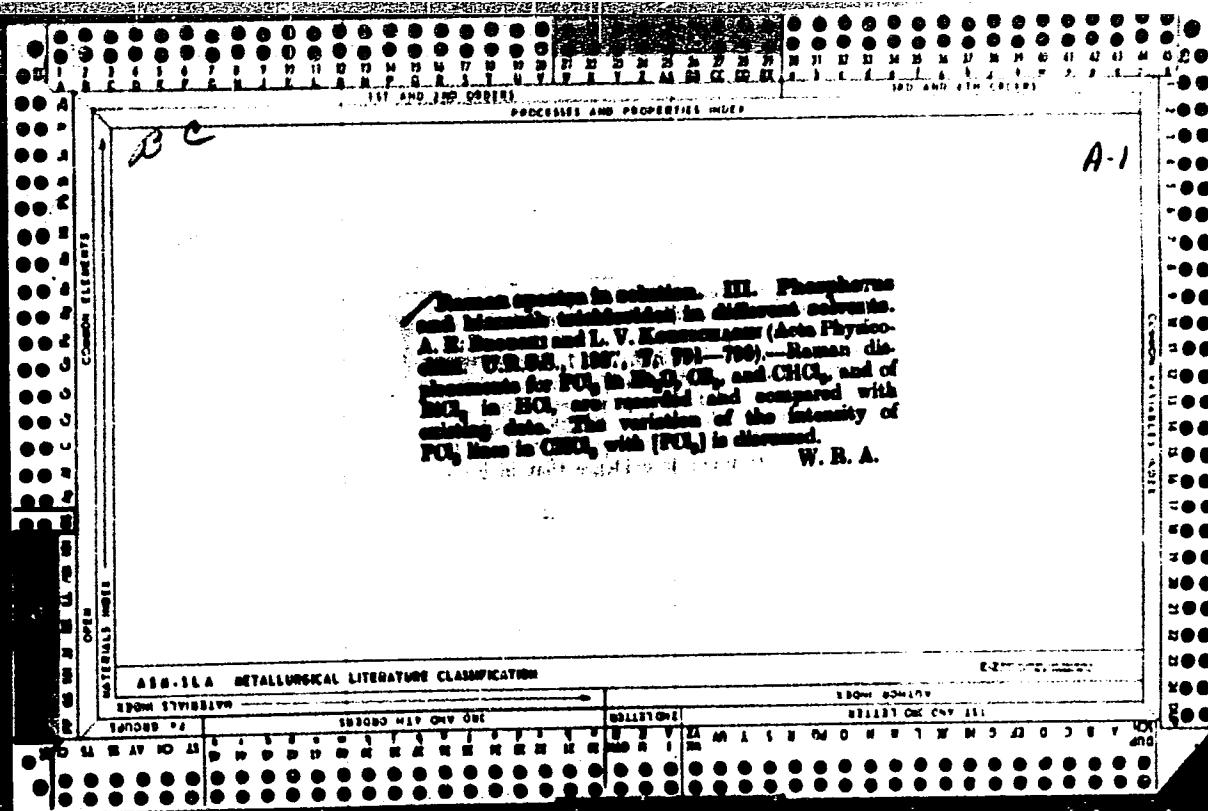


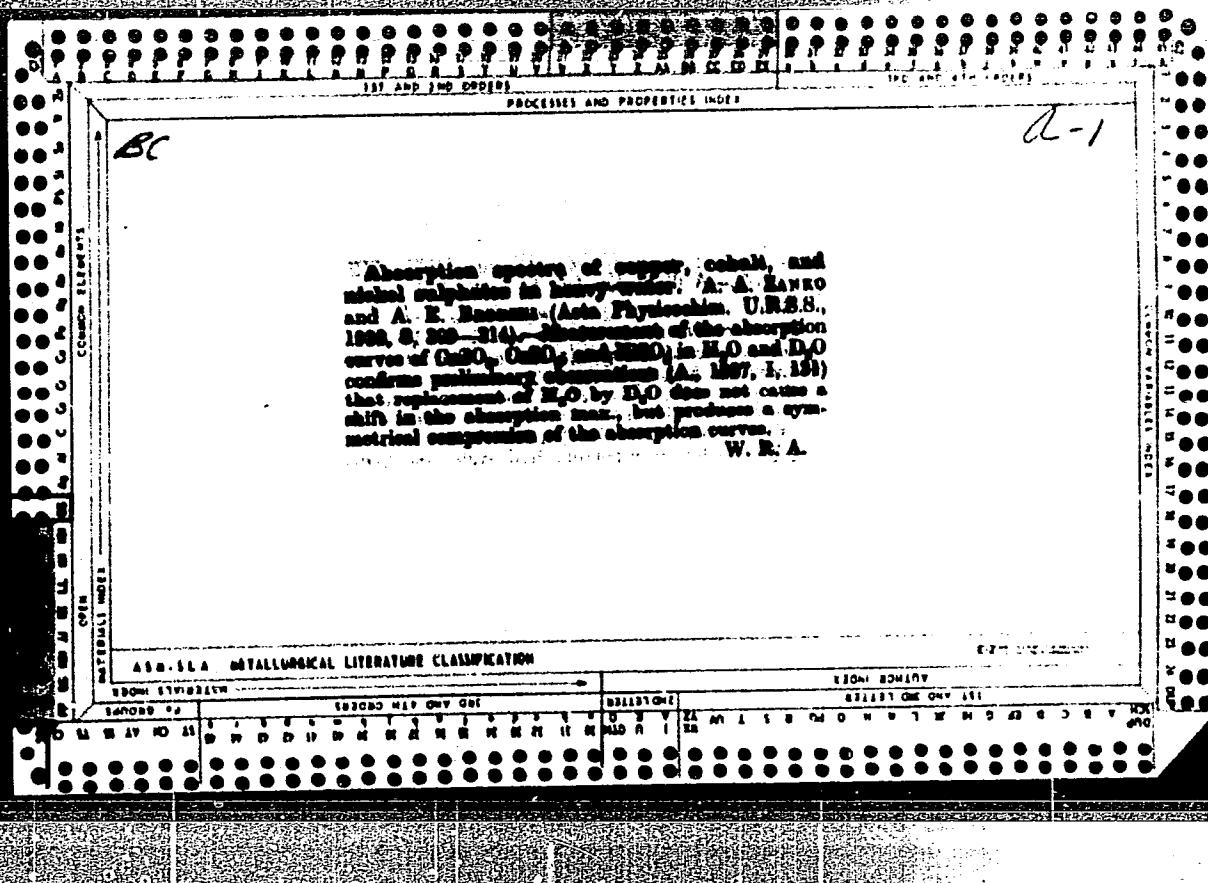


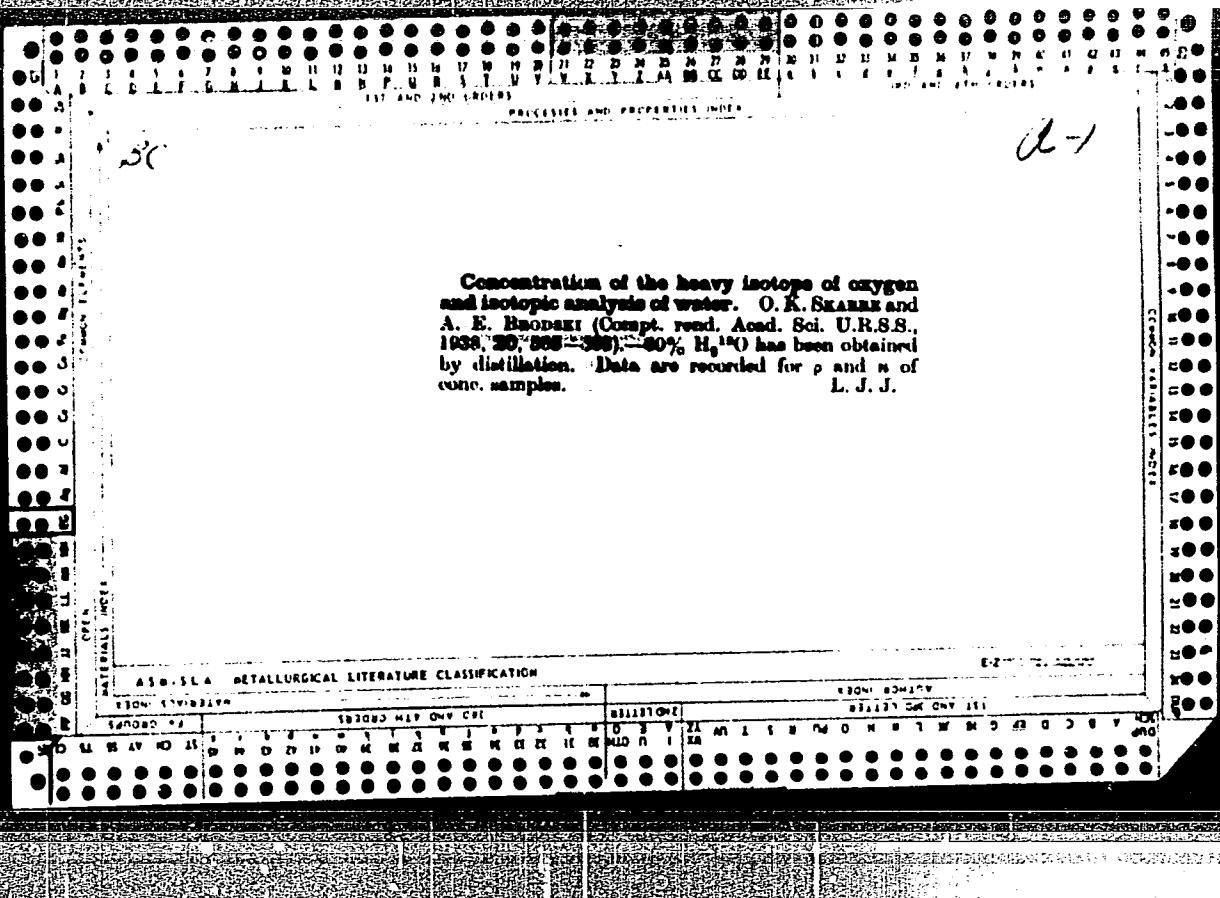


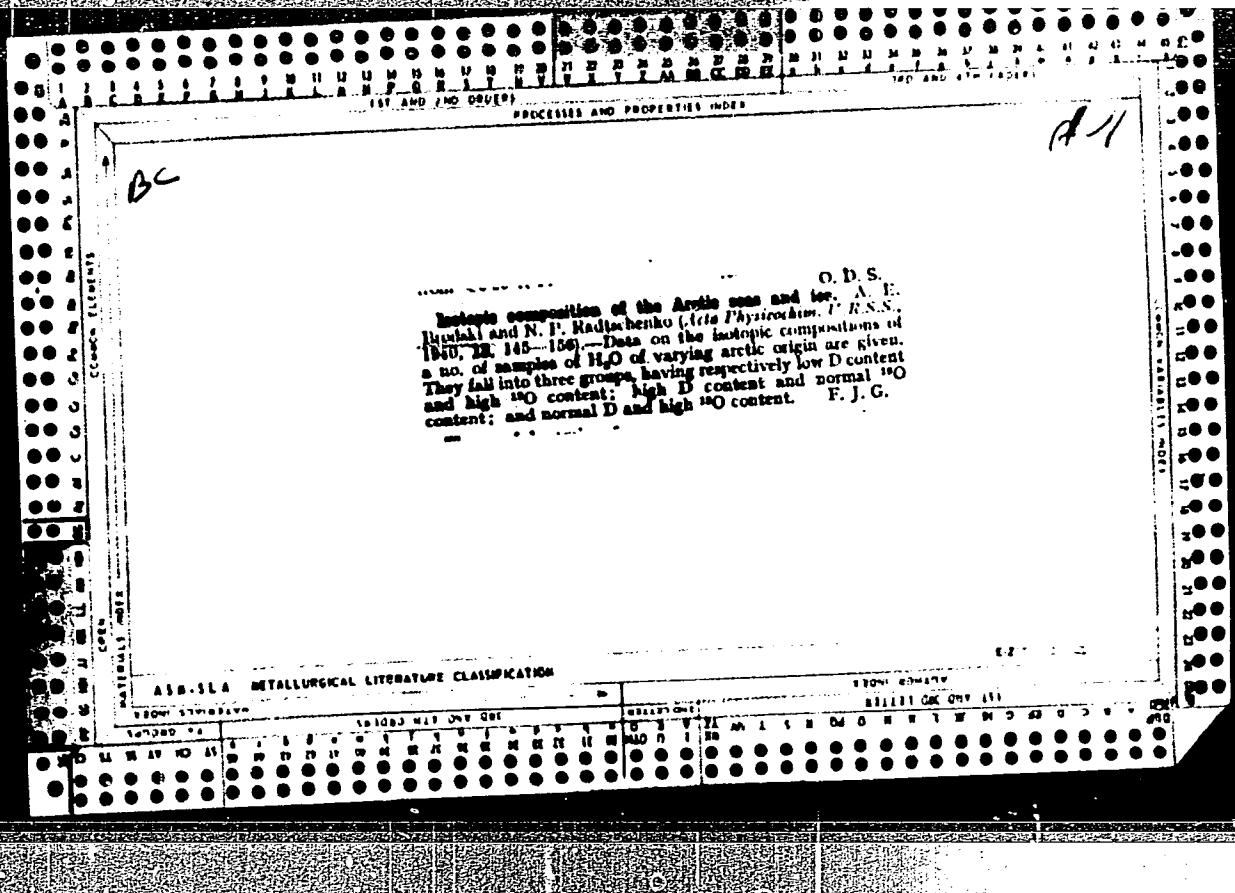


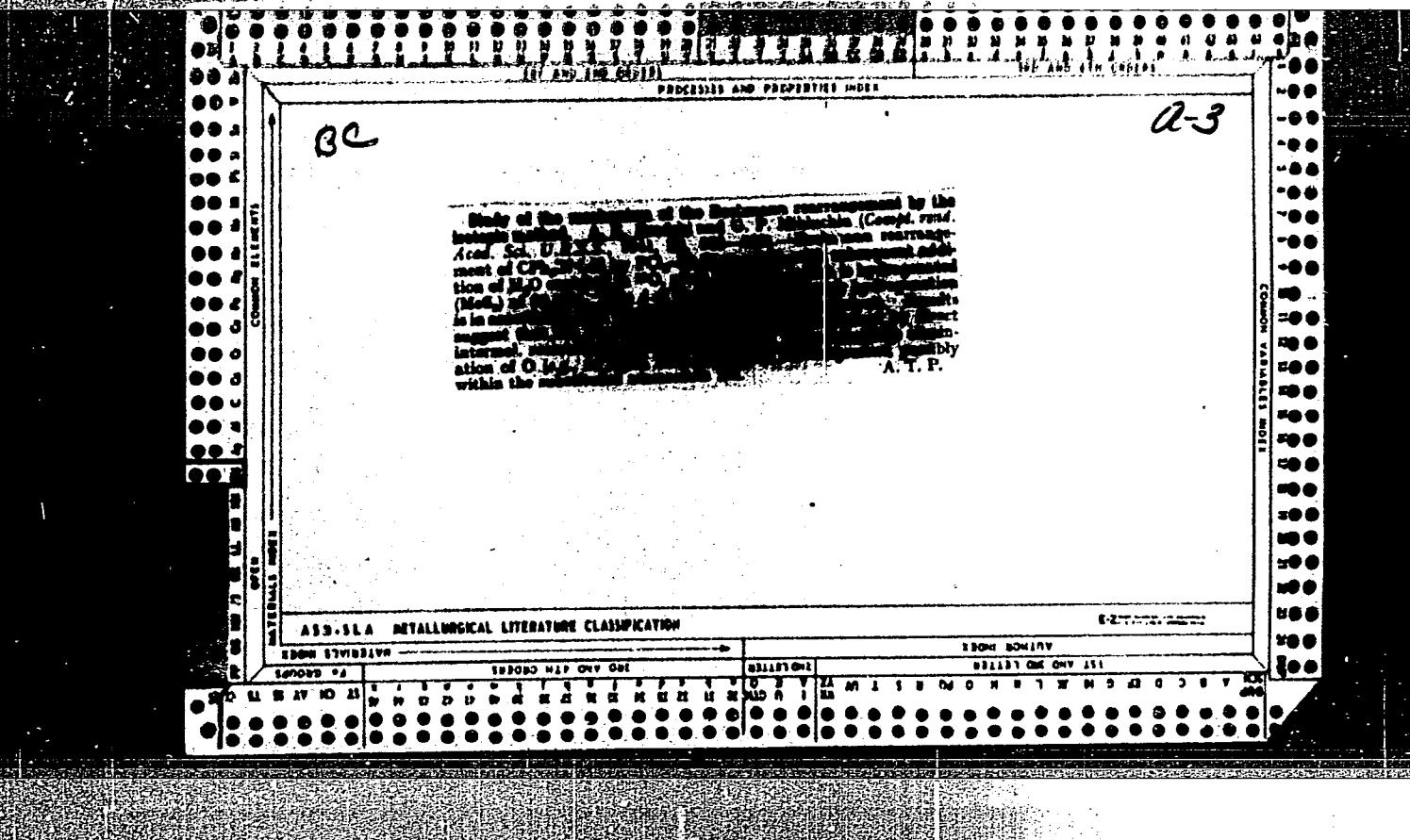












100-1000
100-1000

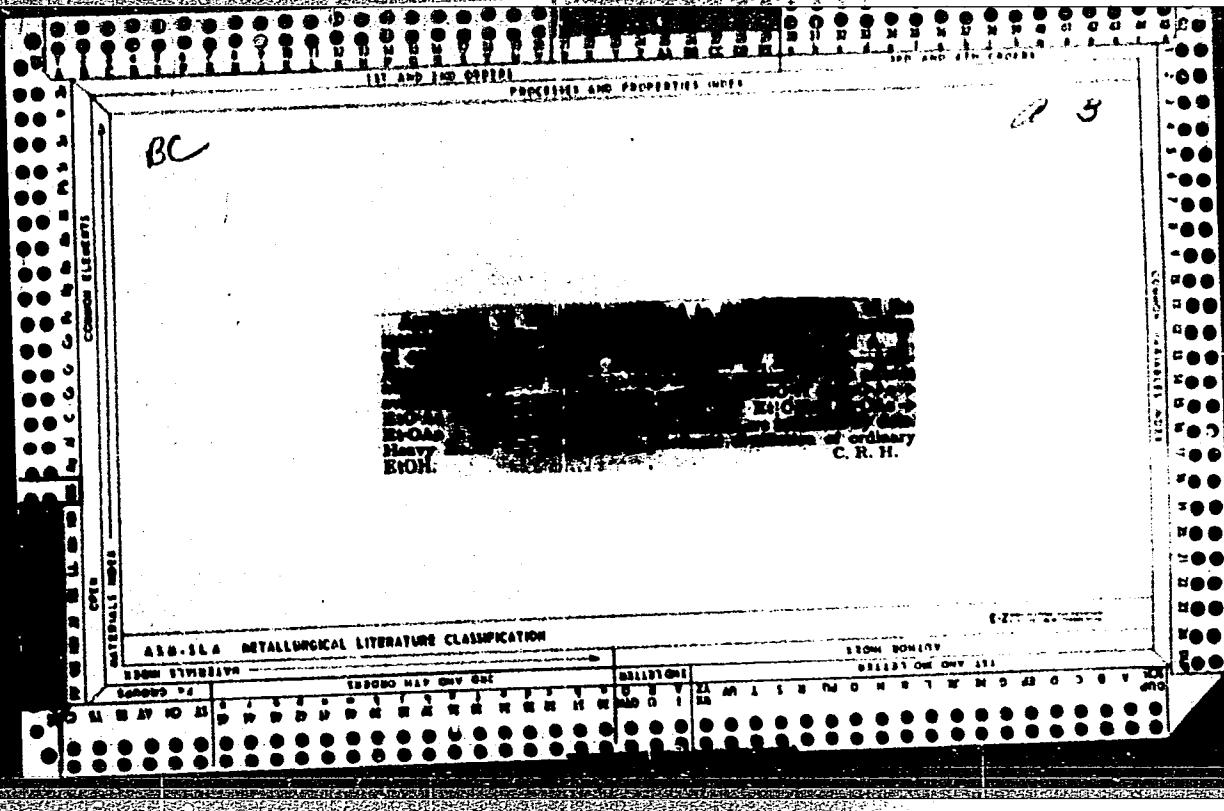
II. Study of mechanism of chemical reactions with oxygen isotopes.
II. Mechanism of the Beckmann rearrangement. G. Mikluchin and
A. Brodski (*Acta Physicochim. U.R.S.S.*, 1942, 18, 63 -70).— Experi-
ments with H_2O enriched in ^{18}O show that no exchange occurs
between H_2O and $NHPh_2$ in an acid or neutral medium; no
exchange occurs between H_2O and $NHPhAc$ in a neutral medium; no
but in acid slow exchange is detected. Reaction of $CPh_3N\cdot OH$
with HO and PCl_5 in the cold is accompanied by O exchange,
showing that the Beckmann rearrangement occurs by an intermediate
elimination of O as H_2O , and not by direct intramol. rearrangement

b7d

Partial separation of uranium light isotope by thermal diffusion.
A. E. Brindabell (*Acta Physicochim. U.R.S.S.*, 1942, 17, 224-227).—
Calculations are made of the necessary equipment and efficiency
for the separation of ^{234}U by thermal diffusion using UF_6 . The
energy expended in separation is 40-80% of that yielded by fission
of the ^{235}U nuclei. J. P. H.

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8



APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

ERODSKIY, A. E. and MIKLUKHIN, G. P. (Kiev)

"Untersuchung über den Austausch von Schwefel-Isotopen in Schwefel-Verbindungen."

paper presented at the Intl Conference on Radioisotopes in Scientific Research
in Paris, 19-20 Sept. 1957.

Angewandte Chemie, No. 3, 1958.

Chemical Abstracts Service
1950 Vol 47, No 7

ISOTOPIC EXCHANGE OF OXYGEN IN ACID AND SALT SOLVENTS
AND THEIR DERIVATIVES

By J. H. Dickey and A. J. F. Gosselin, Jr.
Department of Chemistry, University of Wisconsin,
Madison, Wisconsin 53706
Received June 1, 1950
Accepted July 1, 1950
Published by the American Chemical Society, Washington, D. C., 1950
Copyright, 1950, by the American Chemical Society
0003-0100/50/0747-01\$01.00/0

BRODSKIY, A. YE.

"Utersuchengen über den Mechanisms einger Reaktionem der Peroxydverbindungen mit Hilfe des Isotops ^{18}O ."

Report presented at the 2nd Conf. on Stable Isotopes
East German Academy of Sciences, Inst. of Applied Physical Material
Leipzig, GDR 30 Oct-4 Nov 1961.

BRODSKIY, A.Ye.; TOLMACHEVA, N.V.; ROMVARI, P.

Softening of heat-treated structural steel. Metalloved. i
term. obr. met. no. 8:47-49 Ag '64. (MIRA 17:10)

1. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh
konstruktsiy i Budapeshtskiy politekhnicheskiy institut.

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, B.; VARSHAVSKIY, A.

Giant. Znan. sila 36 no.10:34-35 0 '61.

(MIRA 16:12)

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

BRODSKIY, Boris.

[The entire world is in the southwest] Vés' mir na Iugo-Zapade. Moskva, Izd-vo "Znanie" [1961] 66 p.
(MIRA 15:7)
(Exhibitions)

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, B., kand.iskusstvovedeniya; VARSHAVSKIY, A., kand.istoricheskikh nauk

Bronze horseman. Znan.sila 36 no.1:14-17 Ja '61. (MIRA 14:3)
(Leningrad--Monuments) (Falconet, Etienne Maurice, 1716-1791)

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, B.; VARSHAVSKIY, A.

Marseillaise. Znan. sila 36 no.12:35-36 D '61. (MIRA 15:1)
(Paris--Arches, Triumphal)

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

Brodskiy B.A.

"Analiz Gotevih Lekarstvennih Form," Analysis of Prepared Medicinal Forms, Leningrad,
1950.

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

БРОДСКИЙ, Б.С.

25972 Бродский, Б.С. Znacheniye Neagnichivaniya Vnutriglaznykh Oskolkov
Dlya Uspeshnogo Udaleniya Ikh Magnitor. Oftalmol. Zhurnal, 1948, No.2 S. 55-57.

SO: Leto; is' Zhurnal Statey, No. 30, Moscow, 1948

BRODSEK, B. S.

26659 Znachenie postoyannogo magnita brodskogo--kal'fa v usloviyakh voyennogo
vremeni oftalmol furnal, 1949, No. 3, s. 123-25

SO: LETOPIS' NO. 35, 1949

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, B. S.

Brodskiy, B. S. - "Magnetic Operations in Ocular Practice." Odessa State Medical Inst imeni N. I. Pirogov. Odessa, 1956 (Dissertation for the Degree of Doctor in Medical Sciences).

So: Knizhnaya Letopis', No. 10, 1956, pp 116-127

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

Name BRODSKIY, Bentsion Samoylovich
Dissertation Magnetic Operations in the practice
of Ophthalmology
Degree Doc Med Sci
Affiliation /not indicated/
Defense Date, Place 19 ..pr 56, Council of Odessa State
Med Inst imeni Pirogov
Certification Date 15 Dec 56
Source BMVO 7/57

Brodskiy
BRODSKIY, B.S., dotsent

"Problems in injuries of the eye; collected papers from the
Department of Ophthalmological Pathology at the Gor'kii Medical
Institute in Stalino." Reviewed by B.S.Brodskii. Oft.shur. 12
no.2:125-126 '57. (MIRA 10:11)
(EYE--WOUNDS AND INJURIES)

BRODSKIY, B.S., dots.

Organization of first aid for the eyes. Uch. zap. UNEIGB 4:344-346 '58.
(MIRA 12:6)

I. Ukrainskiy eksperimental'nyy institut glaznykh bolezney i tkanevoy
terapii imeni akademika V.P. Filatova.
(EYE--WOUNDS AND INJURIES)

BROESKIY, B.S., doktor med. nauk

Experimental data on the condition of the scleral incision following trepanation for removal of a splinter from inside the eye. Oft. zhur. 13 no.1:26-29 '58. (MIRA 11:4)

1. Iz kliniki glaznykh bolezney (zav.-prof. S.F.Kal'fa) Odesskogo meditsinskogo instituta im. N.I.Pirogova.
(EYE--SURGERY)

BRODSKIY, B.S., dots. doktor med. nauk.

Comparative estimation of results obtained from X-ray localization
of intraocular splinters according to the methods of Komberg-Baltin
and Abalikhin-Pivovarov. Oft. zhur. 13 no.6:337-342 '58. (MIRA 12:1)

1. Iz kliniki glaznykh bolezney imeni akademika V.P. Filatova (zav.
-prof. S.F. Kal'fa) Odesskogo meditsinskogo instituta imeni N.I. Pirogova.
(EYE--FOREIGN BODIES)

BRODSKIY, B.S., doktor med.nauk

Choice of a place for opening the sclera for effective removal
of splinters from the eye. Oft.shur. 13 no.7:439 '58.

(MIRA 12:1)

1. Iz kafedry glaznykh bolezney imeni akademika V.P. Filatova
(zav. - prof. S.F. Kal'fa) Odesskogo meditsinskogo instituta.
(EYE--FOREIGN BODIES)
(SCLERA--SURGERY)

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, B.S., doktor med. nauk

"Battlefield ophthalmology" by B.L. Poliak. Reviewed by B.S.
Brodskii. Oft.shur. 13 no.8:496-497 '58. (MIRA 12:2)
(OPHTHALMOLOGY) (MEDICINE, MILITARY)
(POLIAK, B.L.).

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

BRODSKIY, B.S... doktor med.nauk, dots.

Prevention of adhesions in eye burns. Oft.zhur. 14 no.6:337-343, 1950
(MIRA 13:4)

1. Iz kafedry glaznykh bolezney (zav. - prof. S.F. Kal'fa) Odes-
skogo meditsinskogo instituta im. N.I. Pirogova.
(EYE--WOUNDS AND INJURIES) (BURNS AND SCALDS)
(EYE, INSTRUMENTS AND APPARATUS FOR)

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, B.S., doktor med.nauk

"Eye injuries in industry and their prevention" by O.I. Shereshevskaya.
Reviewed by B.S. Brodskii. Oft.zhur. 15 no.2:124-125 '60.

(~~МЫСЛ--WOUNDS AND INJURIES~~) (SHERESHEVSKAYA, O.I.) (MIRA 13:5)

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

BRODSKIY, B.S., doktor meditsinskikh nauk

"Eye injuries in agriculture; a manual for the practicing physician"
by A.G.Krol'. Reviewed by B.S.Brodskii. Oft. zhur. 15 no.5:314-315
'60, (MIRA 13:9)

(EYE—WOUNDS AND INJURIES)

(KROL', A.G.)

"APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R000307010002-8

BRODSKIY, B.S., doktor med.nauk (Odessa)

Does television harm vision? Zdorov'e 6 no. 11:31 N '60.
(MIRA 13:10)
(TELEVISION--PHYSIOLOGICAL EFFECT) (VISION)

APPROVED FOR RELEASE: 08/22/2000 CIA-RDP86-00513R000307010002-8"

BRODSKIY, B.S.; RABINOVICH, M.G., red.; MATVEYEVA, M.M., tekhn.
red.

[Magnetic surgery for the extraction of metal fragments
from the eye] Magnitnye operatsii dlja izvlechenija metal-
licheskikh oskolkov iz glaza. Moskva, Medgiz, 1963. 142 p.
(MIRA 16:7)

(EYE--SURGERY) (MAGNETISM--THERAPEUTIC USE)

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

БРОДСКИЙ, Б. Я.

Brodskiy, B. Ya. - "Moscow University honors a leading Soviet scientist. On the occasion of the 50th anniversary of the birth of Academician T. D. Lysenko", (Summary of the speeches given at the anniversary dinner), Vestnik Mosk. un-ta 1948, No. 10, p. 13-19.

SO: U-3042, 11 March 1953, (letopis 'nykh Statey, No. 10, 1949).

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

BRODSKIY, B.Yu., kapitan med. sluzhby

Organization and execution of prophylactic disinfection measures in
a garrison. Voen.-med. zhur. no.8:71-72 Ag '60. (MIRA 14:7)
(MILITARY HYGIENE) (DISINFECTION AND DISINFECTANTS)

BRODSKIY, D.

Innovators should join the society. NTO 3 no.6:29 Je '61.

(MIRA 14:6)

1. Predsedatel' Volynskogo oblastnogo pravleniya Veseroyuzhnogo
khimicheskogo obshchestva imeni D.I.Mendeleyeva, g. Lutsk.
(Volynsk Province--Chemical industries)

1. 03576-67 EWT(m) DS/FDN/MW

ACC NR: AP6033481

SOURCE CODE: UR/0413/66/000/018/0083/0084

INVENTOR: Khanin, I. M.; Smul'sov, A. S.; Brodskiy, E. V.; Mizin, V. A.

ORG: none

TITLE: Liquid atomizer. Class 24, No. 186066

SOURCE: Izobret prom obraz tov zn, no. 18, 1966, 83-84

TOPIC TAGS: fuel atomizer, fuel atomization, fuel injector

ABSTRACT: The proposed liquid atomizer consists of a housing containing a guide assembly inside it. In order to obtain uniform atomization of large volumes of liquids at low pressures, the nozzle guide assembly is provided with disks, placed one above another, and having offcenter openings with different diameters. A cylindrical partition is mounted under the upper disk (see Fig. 1). Orig. art. has: 1 figure.

[WA No. 88]

Card 1/2

UDC: 697.932.6

ACC NR: AP6033481

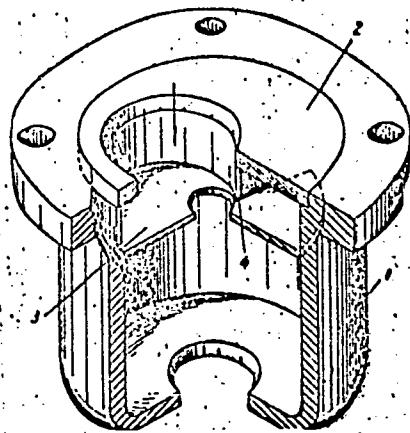


Fig. 1. Liquid atomizer

1 - Housing; 2 - upper disk;
3 - lower disk; 4 - parti-
tion.

SUB CODE: 21/ SUBM DATE: 15Apr65

HW
Card 2/2

BRODSKIY, E.Ya., inzh.

Reducing the volume and improving the quality of technological documentation. Sudostroenie 24 no.2:54-56 F '58. (MIRA 11:3)
(Shipbuilding-- Contracts and specifications)

TO THE EDITOR OF SCIENCE AND TECHNOLOGY, RUSSIAN ACADEMY OF SCIENCES
TOPIC TAGS: nitrogen, oxygen, chlorine, impurities, flux refinement, recovery, transport

ABSTRACT: The method of oxygen and nitrogen control in magnesium was used to assess the effectiveness of removing admixtures. Flux refining was employed and specimens taken from two cells of an electrolyzer as well as before and after refining.

L 30755-65

ACCESSION NR: AF4C47473

of the metal with respect to chlorine. Thus, the authors were able to retain the original level of oxygen and nitrogen. "The authors also state that literature quantities and conditions of the reaction are not given, but the reaction is described as being rapid.

ASSOCIATION: None

SUBMITTED: CR

ENCL: 00

NR REF Sov: 006

OTHER: 002

Card 2/2

L 21201-65 EPA(s)-2/EWT(m)/EPF(n)-2/EPR/EWP(t)/EPA(bb)-2/EWP(b) Ps-4/
Pnd/Pt-10/Pu-4 IJP(c) JD/VW/HW/JG S/0138/64/000/012/0053/0056
ACCESSION NR: AP5000940

AUTHOR: Rodyakin, V.V., Andreyev, A. Ye., Boyko, Yu.N., Vaynshteyn, G.M.,
Kargin, V.M., Brodskiy, E. Ye., Khabarova, N.P., Tkalich, V.S.

TITLE: Transportation of liquid metallic magnesium

SOURCE: Tsvetnyye metally, no. 12, 1964, 53-56

TOPIC TAGS: liquid magnesium, liquid magnesium transport, titanium production,
magnesium contamination, vacuum ladle, nickel impurity

ABSTRACT: A special vacuum ladle was designed for the transportation of liquid magnesium which protects against reaction with nitrogen and oxygen and contamination by inclusions. The metal was sampled from the electrolytic cells, from the vacuum ladle and from the reactor, which is the route the magnesium followed, and the content of O, N, Cl, Fe, Si and Ni was determined in these samples. The content of all impurities except nickel dropped during the intake and transportation of the magnesium. The quality of the magnesium deteriorated when charged into the reactor, the nitrogen and oxygen contents in the samples having increased owing to poor air-tightness of the charging unit. The content of chlorine also increased. The magnesium was contaminated with nonmetallic
cord 1/82

L 21201-65
ACCESSION NR: AP5000940

inclusions mainly during the operations of sampling from the electrolytic cells and when pouring into the reducing reactors; the content of metallic impurities remained unchanged. To improve the sampling methods, and thus avoid contamination, further studies are to be directed toward excluding contact of the magnesium with the air, creation of a shielding atmosphere, and reduction of the number of operations associated with pouring the liquid magnesium from vessel to vessel. "Ye. V. Pirozhok, [S.V. Yurchenko (deceased), I.P. Muntyanov, N. Yu. Sulchorukova, N.K. Bulanaya, N. Ya. Akhitemenko and A.M. Bragin also took part in the work." Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 00

ENCL: 01

SUB CODE: MM, IE

NO REF Sov: 001

OTHER: 000

Card 2/3

BRODSKIY, F. I.

BRODSKIY, F. I.: "The role of the water factor in the pathogenesis of convulsive attacks in epilepsy." Kuybyshev State Medical Inst. Kuybyshev, 1956. (Dissertation For the Degree of Candidate in Medical Sciences.)

Knizhnaya letopis', No. 39, 1956. Moscow.

BRODSKIY, F.I.

New preparation used in the treatment of epilepsy and its
therapeutic effectiveness. Zhur.nevr. i psikh. 55 no.9:682-689
'55. (MLRA 8:11)

1. 3-ya psichiatriceskaya klinika (sav. F.I.Brodskiy) Ukrainskogo
nauchno-issledovatel'skogo psichoneurologicheskogo instituta.
(EPILEPSY, therapy,
mixture containing various drugs.)

1. BRODSKIY, F. I.
2. USSR (600)
4. Stock and Stockbreeding
7. Initiators of socialist competition for high quality in stock-breeding, Sots. zhiv., 15, No. 2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

PEDYK, P.K.; BRODSKIY, F.I.; ROMANOVICH, Ye.F., redaktor; VESKOVA, Ye.I.,
tekhnicheskiy redaktor

[Vinnitsa stockbreeders] Vinnitskie zhivotnovody. Moskva, Gos.
izd-vo selkhoz. lit-ry, 1956. 221 p. (MIRA 9:8)
(Vinnitsa Province--Stock and stockbreeding)

BRODSKIY, G.

Loss reduction in metallurgy. Metallurg 7 no.11:33 N '62.
(MIRA 15:10)

1. Predstavitel' Dnepropetrovskogo soveta narodnogo khozyaystva
i Oblastnogo soveta professional'nykh soyuzov po obsledovaniyu
zavoda im. Dzerzhinskogo.

(Iron and steel plants)

L 2922-66 EWT(d)/EWP(c)/EWP(v)/T/EWP(k)/EWP(h)/EWP(1) IJP(c) BB/GG/JXT(CZ) 53
 AM4048670 BOOK EXPLOITATION UR/
 Kozlova, O.; Brodskiy G.; Dudorin, V.; Mitin, S.; Nikonova, L.; Salomatin, N. 6P2,15 P75 B+/
 44 44 44 44 44 44 44

Application of electronic computers to production control (Primeneniye elektronno-vychislitel'nykh mashin v upravlenii proizvodstvom) Moscow, Izd-vo "Mysl", 1964. 508 p. illus., fold-in diagrs. 7000 copies printed. Under the editorship of: Professor O. V. Kozlova, Doctor of Economic Sciences; Editor: V. Budarina; Junior editor: L. Ulanova; Proofreaders: L. Chigina, Yu. Starikova, O. Mel'nikova, S. Novitskaya.

TOPIC TAGS: automation, electronic computer, production control

PURPOSE AND COVERAGE: This book is expected to be of definitive assistance to industrial personnel. The book was based on research performed in the Nauchno-issledovatel'skaya laboratoriya ekonomiki i organizatsii proizvodstva Mosgorskogo narkhoza at the Moskovskiy inzhenerno-ekonomicheskiy institut imeni Sergo Ordzhonikidze. All the work has been subjected to experimental introduction into practice at several Moscow enterprises.

Card 1/2

L 2922-66
AM4048670

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Ch. I. Principles of production control with the aid of electronic computers - 3	
Ch. II. Technical-economic planning with the application of electronic computers	
Ch. III. Application of electronic computers in operational production planning of series production -- 109	-- 56
Ch. IV. Operational production planning with the application of electronic computers in unit and in small-series production -- 194	
Ch. V. Application of electronic computers in intraplant <u>accounting</u> -- 278	14
Ch. VI. Information concerning the operation of enterprises with the aid of electronic computers -- 419	
Ch. VII. Questions of the economic feasibility of applying electronic computers in production control -- 493	

SUB CODE: IE

SUBMITTED: 3Jan64

NR REF Sov: 007

OTHER: 000

PC

Card 2/2

BRODSKIY, G.

Quality and reliability first. Metallurg 10 no.7:44 JI '65.
(MIRA 18:7)
1. Zavod im. Petrovskogo.

BRODSKIY, G.

New achievements in the current seven year plan. Metallurg 10
no.8:34 Ag '64. (MIRA 17:11)

1. Metallurgicheskiy zavod im. Petrovskogo Pridneprovskogo soveta
narodnogo khozyaystva.

BRODSKIY, G.

Improve work of wage boards. Sov.profsoiuzy 4 no.6:50-52 Je '56.
(MLRA 9:8)

1. Starshiy inzhener otdela organizatsii truda zavoda imeni
Petrovskogo.

(Wages)

BRODSKIY, G.A.

Experience in using the AIKh filter in removing iron from water.
Vod.i san.tekh. no.8:31-32 N '55. (MLRA 9:3)
(Filters and filtration) (Water--Purification)

BRODSKIY, G.A.
BRODSKIY, G.A. (Kiyev)

A well-less water post. Vod.i san.tekhn. no.9:29-30 S '57.
(MIRA 10:11)
(Water-supply engineering--Apparatus and supplies)

"APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8

BRODSKIY, G.I.; MEREZHANNYY, S.B.; REZNIKOVSKIY, M.M.; SAKHNOVSKIY, N.L.

Evaluation of service life of protective rubbers. Trudy Nauch.-
issl. inst. shin. prom. no.7:78-90 '60. (MIRA 14:8)
(Rubber--Testing)

APPROVED FOR RELEASE: 08/22/2000

CIA-RDP86-00513R000307010002-8"

S/138/60/000/003/03/001
A051/A029

AUTHORS: Brodskiy, G.I.; Sakhnovskiy, N.L.; Reznikovskiy, M.M.; Yevstratov,
V.F.

TITLE: Mechanical and Thermochemical Destruction in the Wear of Rubber Under
Various Conditions

PERIODICAL: Kauchuk i Rezina, 1960, No. 8, pp. 22 - 29

TEXT: Brief reference is made to the previous theories on the wear mechanism of rubber described in Refs. 1 - 10. It was found that the relative role of the mechanical and chemical factors in the wear mechanism of rubber depends on the testing conditions. On smooth surfaces with a low thermal conductivity the wear-cut in rubber takes place primarily according to the mechanism of thermooxidizing destruction. On rough surfaces it takes place mainly according to the mechanism of mechanical wear-out. The experiments were conducted on a НИИШП ИММ1 (NIIShP IML) Dunlop-Lamburne-type machine. The various types of abrasive surfaces selected for the study were: a smooth tin plate, smooth plexiglas, a steel plate with specially cut-out grooves on its surface, (the carbon black dosage was 50 weight parts to 100 weight parts of rubber), a plastic (vinyplast) plate, also with grooves, a Monocorund 150 polishing skin and a 4-mm plate of hard rubber (hardness = 84, ac-
Card 1/3

S/138/60/003/008/006/015
A051/A029

Mechanical and Thermochemical Destruction in the Wear of Rubber Under Various Conditions

cording to shore). It was shown that the braking force F depends comparatively little on the nature of the wearing-out surface and the composition of the rubber. The wear intensity evaluated from the volume loss per min. changes more significantly. It is deducted the wear index v , depends on the nature of the surface and the nature of the surface material just as much as the wear intensity, and is characteristic only for a given friction couple. The investigated materials of the abrasive surfaces fell in the following sequence according to increase in wear intensity: tin < plexiglas < rubber < grooved plastic < grooved steel < Monocorund 150. The wear from a metal surface takes place at considerably lower temperatures than from materials with less thermal conductivity. It is also noted that the wear on rough uneven surfaces is primarily mechanical. It is further shown that the air oxygen has a substantial effect on the wear of rubber. The effect of the medium on the abrasion increases with a decrease of the abrasiveness of the abrasive coating and with an increase in testing temperature. Tread rubbers based on various raw materials: natural rubber, sodium-butadiene (K6-50 (SKB-50), butadiene-styrene CKC-30APKM (SKS-30ARKM), carboxylic CKC-30-1 (SKS-30-1) chloroprene, nitrile CKH-26 (SKN-26), etc., were selected for the study of the effect of oxygen and

Card 2/ 3

S/138/60/000/008/006/015
A051/AC29

Mechanical and Thermochemical Destruction in the Wear of Rubber Under Various Conditions

nitrogen on wear. It is shown that the degree of change of wear in rubber, when switching over from tests in air to tests in nitrogen, basically depends on the nature of the polymer and the type of carbon black. A study was also conducted of the abrasion of tread rubber based on natural rubber having different anti-aging and anti-fatigue substances in its composition both in an air and nitrogen medium. It is shown that a number of anti-aging and anti-fatigue agents increase the wear-resistance of natural rubber when tested both in air and in nitrogen. Laboratory tests on abrasive skins revealed a predominance of mechanical wear. The authors point out that it is necessary to continue the study for selecting standard abrasive materials in order to attain a maximum similarity between laboratory testing conditions and those of the road. There are 6 tables, 3 figures, 1 diagram, 2 photographs and 15 references: 8 Soviet, 6 English, 1 German.

ASSOCIATION: Nauchno-issledovatel-skiy institut shinnoy promyshlennosti (Scientific Research Institute of the Tire Industry).

Card 3/3

ERODSKIY, G.I.

Toward increased productivity. Metallurg 6 no.11:33-34 N '61.
(MIRA 14:11)
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